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DEPARTMENT
OF
COMPUTER SCIENCE AND ENGINEERING

ASSIGNMENT-2

[18UCSE508- ADVANCED OBJECT ORIENTED PROGRAMMING]

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Submitted by

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Q1. Write a Java program to build the GUI application using JavaFX for the following requirements:
a) Read user name and password using appropriate JavaFX controls.
b) Validate the input. If user name and password are matched with the assumed values, then display the welcome scene with proper text.
c) If user name and password don't match, then raise appropriate exception.
package application;

```java
import javafx.application.Application;
import javafx.geometry.Pos;

import javafx.scene.Scene;

import javafx.scene.control.Button;

import  javafx.scene.control.Label;

import javafx.scene.control.PasswordField;

import javafx.scene.control.TextField;

import javafx.scene.layout.FlowPane;

import javafx.scene.layout.HBox;

import javafx.scene.layout.VBox;

import javafx.stage.Stage;


public class Question1 extends Application {

        public static void main(String[] args) {

                launch(args);

        }

        @Override

        public void start(Stage myStage) {

                // TODO Auto-generated method stub

                myStage.setTitle("UserName and PassWord");


                VBox vbox = new VBox();

                HBox hbox = new HBox();
```

```java
Label label = new Label("User Name : ");

TextField tf = new TextField();


// layout for component

HBox hbox2 = new HBox();


Label label2 = new Label(" password : ");

PasswordField pass = new PasswordField();


// to keep components center

hbox.setAlignment(Pos.CENTER);

hbox2.setAlignment(Pos.CENTER);


//adding components to the horizontal layout

hbox.getChildren().addAll(label,tf);

hbox2.getChildren().addAll(label2,pass);


// creating the button

Button btn = new Button("Submit");


// label for show results

Label label1 = new Label("");


// assumed value for validation

String username = "20cs072";

String password = "pooja";

// setting action on button

btn.setOnAction(e -> {

        // getting the values from the field

        String EUsername = tf.getText();

        String Epassword = pass.getText();
```

```java
// if entered username and password are equal then create a new welcome Scene
        if(username.equals(EUsername) && password.equals(Epassword)) {

                label1.setText(" : WELCOME : ");

                FlowPane flowpane = new FlowPane();

                flowpane.setAlignment(Pos.CENTER);

                Label welcome = new Label(": Welcome :");

                flowpane.getChildren().add(welcome);

                Scene myScene1 = new Scene(flowpane,500,300);

                myStage.setScene(myScene1);

        }else {

                try {

                        throw new MyException();

                }catch(MyException  e1){

                        label1.setText(e1.toString());

                }

        }
});
// adding horizontal components to the main vertical layout

vbox.getChildren().addAll(hbox,hbox2,btn,label1);


// adding layout to the scene

Scene myScene = new Scene(vbox,500,300);


// sapcing between the vartical components

vbox.setSpacing(10);

vbox.setAlignment(Pos.CENTER);


myStage.setScene(myScene);
```
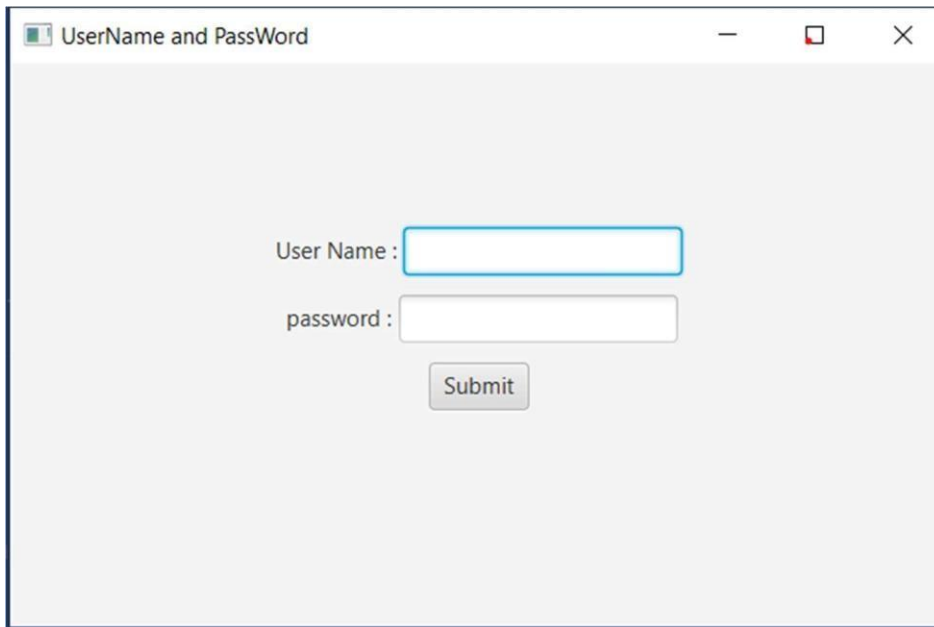
```
            myStage.show();

        }

    }
    class MyException extends Exception{

        public String toString() {

            return "Invaid UserName and Password";

        }

    }
```

Output:

Q2. Write a Java program to build the GUI application using JavaFX for the following requirements:

a) Create a Menu control to display the menu items: File, Edit & Help.

b) Create sub menus in the order: File → New, Open & Save. Edit → Cut, Copy &

Paste. Help → Help Centre, About Us

```
package application;

import javafx.application.Application;

import javafx.scene.Group;
```

```java
import javafx.scene.Scene;

import javafx.scene.control.Menu;

import javafx.scene.control.MenuBar;

import javafx.scene.control.MenuItem;

import javafx.scene.paint.Color;

import javafx.stage.Stage;

public class Question2 extends Application {

  public void start(Stage stage) {

    //Creating file menu

    Menu file = new Menu("File");

    //Creating file menu items

    MenuItem item1 = new MenuItem("New");

    MenuItem item2 = new MenuItem("Open");

    MenuItem item3 = new MenuItem("Save");

    //Adding all the menu items to the file menu

    file.getItems().addAll(item1, item2, item3);

    //Creating edit menu

    Menu edit = new Menu("Edit");

    //Creating fileList menu items

    MenuItem item6 = new MenuItem("Cut");

    MenuItem item7 = new MenuItem("Copy");

    MenuItem item8 = new MenuItem("Paste");

    //Adding all the items to File List menu

    edit.getItems().addAll(item6, item7, item8);

    //Creating help menu

    Menu help = new Menu("Help");

    MenuItem item9 = new MenuItem("Help center");

    MenuItem item10 = new MenuItem("About Us");

    help.getItems().addAll(item9, item10);

    //Creating a menu bar

    MenuBar menuBar = new MenuBar();
```

```
        menuBar.setTranslateX(200);

        menuBar.setTranslateY(20);

        //Adding all the menus to the menu bar

        menuBar.getMenus().addAll(file, edit, help);

        Group root = new Group(menuBar);

        Scene scene = new Scene(root, 595, 200, Color.BEIGE);

    stage.setTitle("Menu Bar Example");

    stage.setScene(scene);

        stage.show();

    }

    public static void main(String args[]){

        launch(args);

    }}
```
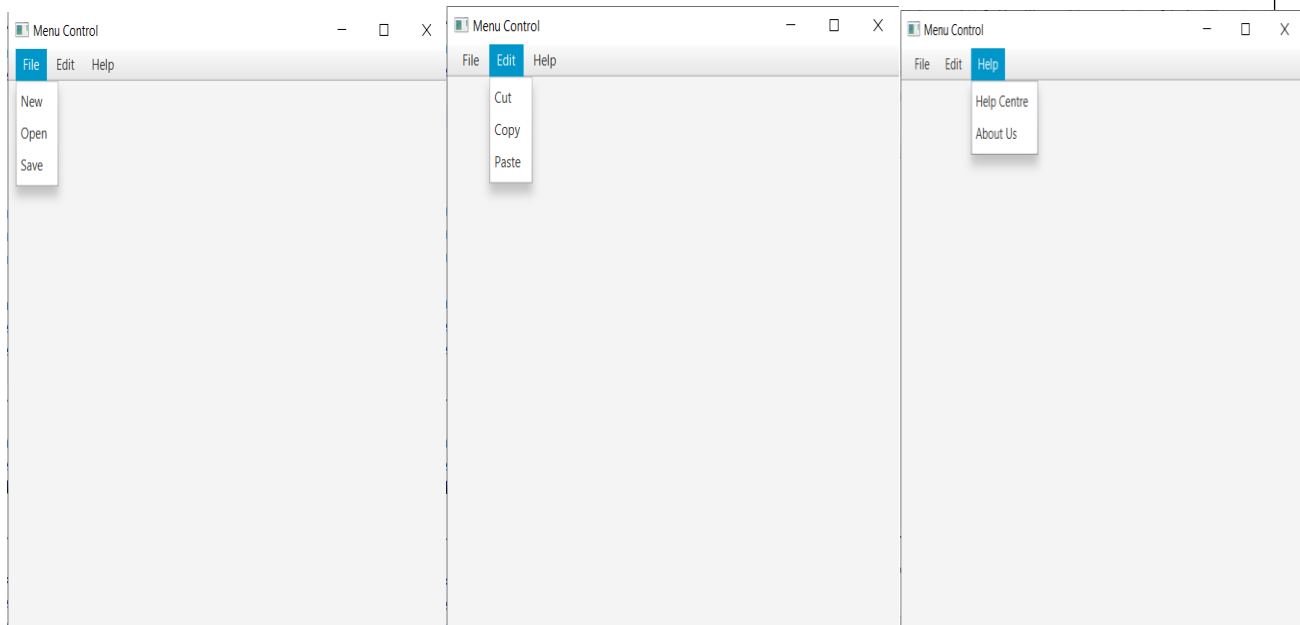
Output:

Q3. Write a Java program to build the GUI application using JavaFX for the following requirements:

a) **Create Context menu involving the menu items in the order: New & View.**

b) **Create sub menus for the above main context menu: New → File, Folder &**

Image. View → Large, Medium & Small.

The context menu must be displayed on right-click of the mouse button.

```java
package application;

import java.io.FileNotFoundException;

import javafx.application.Application;

import javafx.geometry.Insets;

import javafx.scene.Group;

import javafx.scene.Scene;

import javafx.scene.control.Button;

import javafx.scene.control.ContextMenu;

import javafx.scene.control.MenuItem;

//import javafx.scene.control.TextField;

import javafx.scene.layout.HBox;

import javafx.scene.paint.Color;

import javafx.stage.Stage;

public class Question3 extends Application {

  public void start(Stage stage) throws FileNotFoundException {

    //Creating the image view

    Button button1 = new Button("new");

    Button button2 = new Button("view");

    //TextField textField = new TextField();

    //Creating a context menu

    ContextMenu contextMenu1 = new ContextMenu();

    //Creating the menu Items for the context menu

    MenuItem item1 = new MenuItem("file");

    MenuItem item2 = new MenuItem("folder");

    MenuItem item3 = new MenuItem("image");

    contextMenu1.getItems().addAll(item1, item2,item3);

    //Adding the context menu to the button and the text field

    ContextMenu contextMenu2 = new ContextMenu();

    //Creating the menu Items for the context menu

    MenuItem item11 = new MenuItem("large");
```

```
   MenuItem item21 = new MenuItem("medium");

   MenuItem item31 = new MenuItem("small");

   contextMenu2.getItems().addAll(item11, item21,item31);

   button1.setContextMenu(contextMenu1);

   button2.setContextMenu(contextMenu2);

   HBox layout = new HBox(20);

   layout.setPadding(new Insets(15, 15, 15, 100));

   layout.getChildren().addAll( button1,button2);


   Scene scene = new Scene(new Group(layout), 595, 150, Color.BEIGE);

   stage.setTitle("CustomMenuItem");

   stage.setScene(scene);

   stage.show();

  }

  public static void main(String args[]){

    launch(args);

  }

}
```
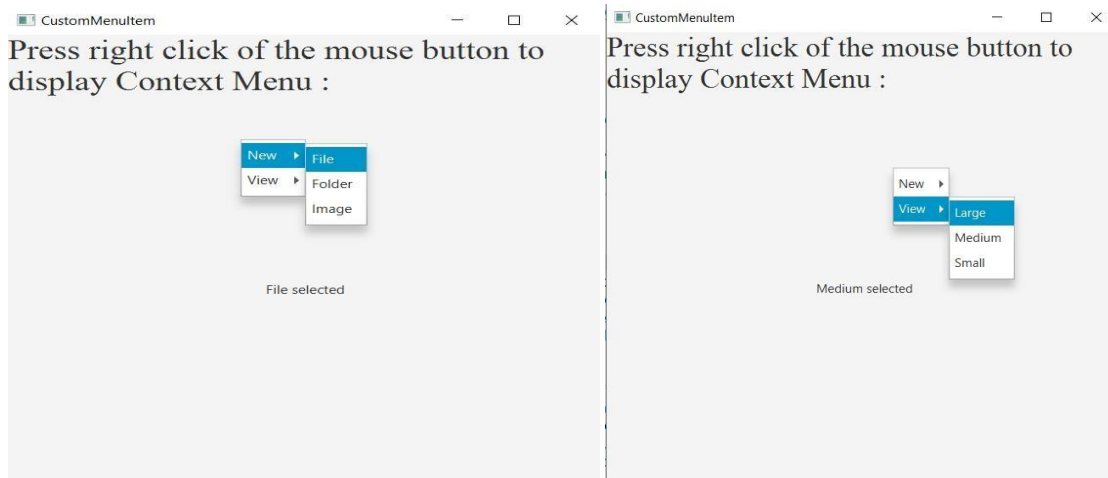
Output:

Q4. Write a JavaFX program that produces the following output when executed and displays Dialog Box

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(as shown in Figure.2) on click of Register button (as shown in Figure.1):

```java
import javafx.application.Application;
import javafx.geometry.Insets;
import javafx.geometry.Pos;
import javafx.scene.control.Dialog;
import javafx.scene.control.DialogPane;
import javafx.scene.Scene;
import javafx.scene.control.Button;
import javafx.scene.control.CheckBox;
import javafx.scene.control.ChoiceBox;
import javafx.scene.control.DatePicker;
import javafx.scene.layout.BorderPane;
//import javafx.scene.control.Button;
import javafx.scene.image.Image;
import javafx.scene.image.ImageView;
import javafx.scene.control.ButtonType;
import javafx.scene.control.Label;
//import javafx.scene.control.Label;
//import javafx.scene.control.ListView;
import javafx.scene.control.RadioButton;
import javafx.scene.layout.GridPane;
import javafx.scene.text.Text;
import javafx.scene.control.TextField;
import javafx.scene.control.ToggleGroup;
//import javafx.scene.control.ToggleButton;
import javafx.stage.Stage;

public class Question4 extends Application {
  @Override
  public void start(Stage stage) {
    //Label for name
        BorderPane root = new BorderPane();
          stage.setTitle(" JavaFX Registration form");
         // label headerLabel = new Label("Registration Form");
          Label label = new Label("Employee Registration Form");
         // Object root;
                root.setTop(label);
                //root.setAlignment(label, Pos.CENTER);

    Text nameLabel = new Text("Enter your Name");

    //Text field for name
    TextField nameText = new TextField();

    //Label for date of birth
```

```java
Text dobLabel = new Text("Enter Date of birth");

//date picker to choose date
DatePicker datePicker = new DatePicker();

//Label for gender
Text genderLabel = new Text("Enter your Gender");

//Toggle group of radio buttons
ToggleGroup groupGender = new ToggleGroup();
RadioButton maleRadio = new RadioButton("male");
maleRadio.setToggleGroup(groupGender);
RadioButton femaleRadio = new RadioButton("female");
femaleRadio.setToggleGroup(groupGender);




Text selectyourqualificationLabel = new Text("Select your qualification");

//check box for education
CheckBox ugCheckBox = new CheckBox("UG");
ugCheckBox.setIndeterminate(false);

//check box for education
CheckBox pgCheckBox = new CheckBox("PG");
pgCheckBox.setIndeterminate(false);
CheckBox phdCheckBox = new CheckBox("PhD");
phdCheckBox.setIndeterminate(false);




//Label for location
Text locationLabel = new Text("select your state");


//Choice box for location
ChoiceBox locationchoiceBox = new ChoiceBox();
locationchoiceBox.getItems().addAll
  ("Karnataka", "Tamilnadu", "Delhi", "Mumbai", "AP");


Button buttonRegister = new Button("Register");

GridPane gridPane = new GridPane();

//Setting size for the pane
```

```java
gridPane.setMinSize(500, 500);

//Setting the padding
gridPane.setPadding(new Insets(10, 10, 10, 10));

//Setting the vertical and horizontal gaps between the columns
gridPane.setVgap(5);
gridPane.setHgap(5);

//Setting the Grid alignment
gridPane.setAlignment(Pos.CENTER);

//Arranging all the nodes in the grid
gridPane.add(nameLabel, 0, 0);
gridPane.add(nameText, 1, 0);

gridPane.add(dobLabel, 0, 3);
gridPane.add(datePicker, 1, 3);

gridPane.add(genderLabel, 0, 2);
gridPane.add(maleRadio, 1, 2);
gridPane.add(femaleRadio, 2, 2);
// gridPane.add(reservationLabel, 0, 3);
//gridPane.add(yes, 1, 3);

gridPane.add(selectyourqualificationLabel , 0, 5);
gridPane.add(ugCheckBox, 1, 5);
gridPane.add(pgCheckBox, 2, 5);
gridPane.add(phdCheckBox,3, 5);

gridPane.add(locationLabel, 0, 4);
gridPane.add(locationchoiceBox, 1, 4);


gridPane.add(buttonRegister, 1, 8);

//Styling nodes
buttonRegister.setStyle(
            "-fx-font: normal bold 15px 'serif' "  );

nameLabel.setStyle("-fx-font: normal bold 15px 'serif' ");
dobLabel.setStyle("-fx-font: normal bold 15px 'serif' ");
genderLabel.setStyle("-fx-font: normal bold 15px 'serif' ");

selectyourqualificationLabel.setStyle("-fx-font: normal bold 15px 'serif' ");

locationLabel.setStyle("-fx-font: normal bold 15px 'serif' ");
```

```java
        gridPane.setStyle("-fx-background-color: white;");


        buttonRegister.setOnAction(e->{
                        // creating a dialog box
                        Dialog dialog = new Dialog();
                        dialog.setTitle("Registration Successfull");
                        dialog.setHeaderText("Registration Status");
                        dialog.setContentText("Employee Registration is successfull");

                        // adding image to the dialog box
               //        Image img = new Image("",50,50,true,true);
                        //ImageView imageview = new ImageView(img);
                        //
                        //dialog.setGraphic(imageview);

                        // adding button to the dialog box
                        dialog.getDialogPane().getButtonTypes().add(ButtonType.OK);
                        dialog.show();
                });



     Scene scene = new Scene(gridPane);


   // stage.setTitle("Registration Form");

     //Adding scene to the stage
     stage.setScene(scene);

     //Displaying the contents of the stage
     stage.show();
  }
  public static void main(String args[]){
    launch(args);
  }
}
}
```

output

JavaFX Registration form

Enter your Name [   ]

Enter your Gender   ○ male   ○ female

Enter Date of birth [   ] [▦]

select your state [▼]

Select your qualification ☐ UG   ☐ PG   ☐ PhD

Register